

### **Remarks**

Claims 1-6 and 10-15 are pending in the present application. In the office action mailed September 23, 2002, the Examiner rejected claims 1-6 and 10-15 under 35 U.S.C. § 112, second paragraph. The Examiner also objected to claims 1 and 15. The Examiner rejected claims 1, 2, 5, 6 and 10-15 under 35 U.S.C. § 103(a) as being unpatentable over admitted prior art (hereinafter APA) in view of FR 2711573A to Dubois (hereinafter Dubois), JP 07291628A to Yoshinori (hereinafter Yoshinori), and optionally DE 4442767A1 to Ilzhöfer, et al. (hereinafter Ilzhöfer). The Examiner rejected claim 3 under 35 U.S.C. § 103(a) as being unpatentable over APA, Dubois, Yoshinori and optionally Ilzhöfer, and in further view of U.S. Patent No. 3,786,708 to Mumper. The Examiner rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over APA, Dubois, Yoshinori and optionally Ilzhöfer, and in further view of U.S. Patent No. 1,491,134 to Northall. By this paper Applicants' attorney amends the specification and claims 1, 2, 5, 6, 11-13 and 15, and adds new claims 16 and 17. Support for new claims 16 and 17 can be found in the specification on page 8, lines 8-9.

### **Specification**

The specification has been amended for consistency.

### **Rejection of Claims 1-6 and 10-15 Under 35 U.S.C. § 112, Second Paragraph**

Claims 2, 5, 6, 11-13 and 15 have been amended to obviate various rejections and the rejections should be withdrawn.

Regarding the type of reinforcement material, Applicants respectfully traverse the rejection of claims 1 and 15. In particular, the specification discloses that the first skin (i.e., skin 101) and the second skin (i.e., skin 103) are each made of a reinforced thermoplastics material, as presently claimed. (See, the specification on page 2, lines 23-27). Nowhere does the specification limit the reinforcement material to fiber reinforcement.

**Objection to Claims 1 and 15**

Claims 1 and 15 have been amended to obviate the objection and the objection should be withdrawn.

**Rejection of Claims 1-6 and 10-15 and Under 35 U.S.C. § 103**

Applicants respectfully traverse the rejection of claims 1-6 and 10-15. In particular, claim 1 provides for a method of making a composite panel of sandwich structure and provided with a hinge, the method being characterized in that, after the panel has been formed, forming a hinge between two portions of the panel at a predetermined place in the panel by cutting only a narrow incision through one of first and second skins, and substantially through the entire thickness of a cellular core, while leaving the other skin intact. Claim 15 provides similar recitations.

The Examiner admits that APA does not disclose forming a hinge by cutting only a narrow incision through one skin and the entire core of the panel while leaving the second skin intact. Instead, the Examiner urges that Yoshinori discloses a method of forming an integral hinge in a thermoplastic honeycomb panel which is used in automobiles by cutting a narrow incision through one skin and the entire core of the panel while leaving the second skin intact. However, contrary to the Examiner's urging, Yoshinori discloses that during the thermofusion of the epidermis material (28) and the core (26), an integral hinge (30) is obtained by maintaining an epidermis layer (24) or an upper epidermis material (27) to an integrated state between portions of a honeycomb layer (22). (See, computer generated translation of Yoshinori, a copy of which is attached for the Examiner's convenience, para. 0014). Yoshinori does not disclose, teach or suggest forming a hinge between two portions of a panel by cutting only a narrow incision through one of first and second skins, and substantially through the entire thickness of a cellular core, while leaving the other skin intact.

Furthermore, the serrated blade used to make the narrow incision 104 of the present invention had a thickness of 0.5 mm. (See, specification, page 8, ll. 8-9). In contrast, Yoshinori discloses the integral hinge (30) has a width (A) that is about 4 mm. (See,

Yoshinori, para. 0015). As such, Yoshinori fails to disclose, teach or suggest forming a hinge between two portions of the panel by cutting only a narrow incision.


Regarding claims 2-14 which depend from claim 1, Applicants contend that these claims are patentable for at least the same reasons that claim 1 is patentable. Moreover, Applicants contend these claims recite further limitations, in addition to the limitations of claim 1, which render these claims additionally patentable.

Consequently, in view of the above amendments to the claims and these remarks, Applicants respectfully contend that the objection and the rejections have been fully replied to and traversed, and that the application is in condition for allowance, and the Examiner is respectfully requested to pass this case to issue.

A check in the amount of \$110 is enclosed to cover the Petition fee. Please charge any additional fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978 -- a duplicate of this paper is enclosed for that purpose.

Respectfully submitted,

Nicholas Hochet, et al.

By   
Thomas W. Saur  
Reg. No. 45,075  
Attorney/Agent for Applicant

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**BROOKS & KUSHMAN P.C.**  
1000 Town Center, 22nd Floor  
Southfield, MI 48075  
Phone: 248-358-4400  
Fax: 248-358-3351

Attachment

*Sub #1*  
*D4*  
5. (TWICE AMENDED) A method according to claim 1, characterized in that the incision (104) is made in the formed panel while said panel is still in a forming mold.

6. (TWICE AMENDED) A method according to claim 1, characterized in that the incision (104) is made in the formed panel outside a forming mold.

*Sub #1*  
11. (THREE TIMES AMENDED) A method according to claim 1, characterized in that, while said panel (100) is being formed, the first and second skins (101, 103) have a forming temperature lying about in the range 160°C to 200°C.

*D5*  
12. (THREE TIMES AMENDED) A method according to claim 1, said method being characterized in that the first and second skins (101, 103) are made up of glass fiber fabric and of the thermoplastics material.

13. (AMENDED) A method according to claim 12, characterized in that the thermoplastics material is a polypropylene.

*Sub #1*  
*D6*  
15. (FOUR TIMES AMENDED) A panel (100) of sandwich-type composite structure and comprising a stack made up of at least a first skin (101) made of a reinforced thermoplastic material, of a cellular core (102) made of a thermoplastics material, and of a second skin (103) made of a reinforced thermoplastics material, the panel being provided with at least one hinge, in which said panel (100) is made by implementing a method of forming said panel (100) by pressing said stack at a high pressure lying in the range  $10 \times 10^5$  Pa to  $30 \times 10^5$  Pa, the first and second skins (101, 103) being preheated to a softening temperature, said method being characterized in that, after said panel has been formed, forming a hinge (106) between two portions (107, 108) of said panel (100) at a predetermined place in said panel by cutting only a narrow incision (104) through one (101) of the first and second skins (101, 103), and substantially through the entire thickness of the cellular core (102), while leaving the other skin (103) intact.

**VERSION WITH MARKINGS TO SHOW CHANGES MADE****In The Specification**

Please replace the paragraph beginning on page 1, line 1 as shown below.

[A] METHOD OF MAKING A SANDWICH-TYPE COMPOSITE PANEL HAVING A HINGE, AND [A] PANEL OBTAINED BY PERFORMING SUCH [A] METHOD

Please replace the paragraph beginning on page 5, line 31 as shown below.

The first and second skins [102] 101, 103 may advantageously be made up of woven glass fiber fabric and of a thermoplastic material.

**In The Claims**

Please replace claims 1, 2, 5, 5, 11-15 and 15 as shown below.

1. (TWICE AMENDED) A method of making a composite panel (100) of sandwich structure and provided with a hinge (106), said panel comprising a stack made up of at least one first skin (101) made of a reinforced thermoplastics material, of a cellular core (102) made up of a thermoplastic material, and of a second skin (103) made up of a reinforced thermoplastics material, in which method said panel (100) is formed by pressing said stack at a high pressure lying in the range  $10 \times 10^5$  Pa to  $30 \times 10^5$  Pa, the first and second skins (101, 103) being preheated to a softening temperature, said method being characterized in that, after said panel has been formed, forming a hinge (106) between two portions (107, 108) of [a] said panel (100) at a predetermined place in said panel by cutting only a narrow incision (104) through one (101) of the first and second skins (101, 103), and substantially through the entire thickness of the cellular core (102), while leaving the other skin (103) intact.

2. (AMENDED) A method according to claim 1, characterized in that the incision (104) in said panel (100) is made [approximately] about in the range 10 seconds to 30 seconds after said panel has been formed.